

USSR/Microbiology - General Microbiology

F-1

Abs Jour : Ref Zhur - Biol., No 11, 1958, 47855

Author : Melek, I.

Inst : -

Title : Microbe Cultures by the Continuous Technique.

Orig Pub : Microbiologiya, 25, No 6, 659-667 (1956)

Abstract : When yeast and fungus bacteria are cultured in a continuous medium by means of a series of interconnected tanks the microbes for a long time remain in the physiologically active state corresponding to the stage of logarithmic growth in static cultures. Stirring leads to the production of a more uniform culture. With both of the culture methods described above a fraction of the cells formed in division ages and dies as a result of inherent nonuniformities in the division process. Notwithstanding the fact that a more uniform culture medium is obtained by the continuous method than by the static method, the microbe population

Card 1/3

USSR/Microbiology - General Microbiology.

F-1

Abs Jour : Ref Zhur - Biol., No 11, 1958, 47855

in the former type of culture in nonuniform, an indication of the nonuniformity of the process of cell division. In the opinion of the author the assumption that existence in the form of agglomerations (populations, colonies) is the only type of existence possible for the microbes is not permitted inasmuch as the microbes constantly break loose from these agglomerations and are dispersed. Under conditions of continuous culture no signs of intraspecific competition can be detected even when the cell count reaches ca. 100 billion per ml. The continuous method has made it possible to observe sporulation in spore types under conditions of continuous inflow of nutrient substances and to detect and study the appearance and development of mutations of the azotobacter. The application of the continuous method, in the opinion of the author, opens new possibilities for the directed variation of microbes and

Card 2/3

- 12 -

USSR/Microbiology - General Microbiology.

F-1

Abs Jour : Ref Zhur - Biol., No 11, 1958, 47855

Great new perspectives in a number of fields of industrial microbiology.
The bibliography lists 31 articles.

Card 3/3

MELEX, J.

"Visiting the Middle Valley of Hron."

p. 84 (Krasý Slovenska, Vol. 34, No. 3, Mar, 1957, Bratislava, Czechoslovakia)

GEOGRAPHY & GEOLOGY PERIODICALS

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 11,
Nov. 1958

MELEX, J.

"The Geyser of Horne Strhary."

p. 87 (Krasý Slovenska, Vol. 34, No. 3, Mar, 1957, Bratislava, Czechoslovakia)

GEOGRAPHY & GEOLOGY Periodicals

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 11,
Nov. 1958

IZRAYELIT, B.Z., dotsent; MELEKESTSEV, A.I., inzh.

Strength of feed and impact. Izv. vys. ucheb. zav.; gor. zhur.
no.11:54-59 1959. (MIRA 14:5)

1. Khar'kovskiy gorny institut. Rekomendovana kafedroy stroitel'stva
gornyykh predpriyatiy.
(Boring)

IZRAYLIT, B.Z., kand.tekh.nauk; MELEKESTSEV, A.I., gornyy inzh.

Dependence of the speed of rotary percussion boring on the
number of strokes per revolution of the boring machine. Gor.
zhur. no.9:70 S '60. (MIRA 13:9)

1. Khar'kovskiy gornyy institut.
(Boring machinery)

MELEKESTSEV, A.I., inzh.

Number of strokes to the revolution of a boring machine
in percussive rotary boring. Izv. vys. ucheb. zav.: gor. ...
zhur. no. 11:137-144 '60. (MIRA 13:12)

1. Khar'kovskiy gornyy institut. Rekomendovana kafedroy
stroitel'stva gornyykh predpriyatiy Khar'kovskogo gornogo
instituta.

(Boring machinery)

MELEKSTSEV, I.V.

Structure of the Kamchatka Valley. Vop. geog. Kamch. no.1:64-68
'63. (MIRA 17:10)

LAZARENKO, Ye.N., kand.tekhn.nauk; MELEKESTSEV, V.I., inzh.; IGNATENKO, I.P., inzh.

Use of stationary automatic methane gauges in mines of the Lvov-Volyn'
Basin. Ugol'. prom. no.6:70-74 N-D '62. (MIRA 16:2)

1. Khar'kovskiy gornyy institut.
(Lvov-volyn' Basin--Mine gases--Measurement)

IGNATENKO, V.M., inah.; MELEKESTSEVA, B.I.

Drilling out coal in working seams subject to sudden outbursts of coal
and gas. Shakht. stroi. 7 no.1:18-20 Ja '63. (MIRA 16:2)

1. Ukrainskiy nauchno-issledovatel'skiy institut organizatsii i
mekhanizatsii shakhtnogo stroitel'stva.
(Coal mines and mining)

ORLOV, Anatoliy Georgiyevich; MELEKH, Bekir Talibovich; TYUMENEVA,
S.T., inzh., red.; FREGER, D.P., red. izd-va; BELOGUROVA, I.A.,
tekh. red.

[Spectrochemical analysis of chlorine, bromine, and iodine in
elementary tellurium] Spektrokhimicheskoe opredelenie khloro,
broma i ioda v elementarnom tellure. Leningrad, 1962. 10 p.
(Leningradskii Dom nauchno-tekhnicheskoi propagandy. Obmen
peredovym opytom. Seriya: Kontrol' kachestva produktsii, no.1)

(MIRA 15:3)

(Halogens)

(Tellurium)

(Spectrochemistry)

MELEKH, D.A.

Comparative study on the glycogen supply in some ectoparasitic and
endoparasitic worms. Vest. LGU 18 no.9:5-13 '63. (MIRA 16:6)
(Glycogen) (Trematoda)

M.
MELEKH, N., inzhener.

Scraper operations in winter. Stroitel' no.2:21 F '57.
(MLRA 10:3)
(Scrapers--Cold weather operation)

MELEKH, N.M., tekhnolog.

Earthwork in winter conditions. Avt.dor. 20 no.9(179):19-20 S '57.
(MIRA 10:10)

(Frozen ground) (Road construction)

ALEKSEYEV, A.I.; LEBEDEV, B.F.; YAKIMISHIN, G.S.; MELEKHIN, A.D.

Mechanizing welding operations in erecting the frame of the ore dressing plant of the Kachkanar Mining and Ore Dressing Combine. Avtom. svar. 16 no.1:60-67 Ja '63. (MIRA 16:2)

1. Institut elektrosvar'ki imeni Ye.O. Patona, AN UkrSSR (for Lebedev, Yakimishin, Melekhin).
(Kachkanar region—Structural frames—Welding)

L 11405-65 EWP(q)/EWT(m)/BDS AFFTC/ S/032/63/029/005/020/022

ASD JD

AUTHORS: Lebedev, D. V., Melekhin, A. K. and Ovsyannikov, B. M. 55

TITLE: Furnace for testing metals¹⁴ for long-time strength at temperatures up to 1500° in air

PERIODICAL: Zavodskaya laboratoriya, v. 29, no. 5, 1963, 618-619

TEXT: The furnace (600 x 250 x 200 mm) was made of asbestos cement 15 mm thick with stainless steel plates at the openings and with MoSi₂ heating elements. The temperature on the test piece was measured with a thermocouple by means of a potentiometer. The load was applied to the test piece after it was heated and while it was held at 1500°C. There are three figures.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii im. I. P. Bardina (Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin)

lm/ja
Card 1/1

ACCESSION NR: AT4001248

S/2776/63/000/032/0164/0174

AUTHORS: Ovsyannikov, B. M.; Melekhin, A. K.; Lebedev, D. V.;
Vol'nov, N. N.

TITLE: Stress rupture testing of refractory metals and alloys at
temperatures up to 1800°C

SOURCE: Moscow. Tsentral'ny*y nauchno-issledovatel'skiy institut
chernoy metallurgii. Sbornik trudov, no. 32, 1963, 164-174

TOPIC TAGS: refractory metal, refractory alloy, ultrahigh tempera-
ture stress rupture test, refractory material stress rupture test

ABSTRACT: In view of the shortage of suitable equipment for me-
chanical tests of high-melting-point metals and alloys at tempera-
tures above 1200°C, the authors describe some of the main equipment
which they constructed for long-run tests in air (up to 1500--1600°C)
and in vacuum. The system constitutes two types of small vacuum

Card 1/42

ACCESSION NR: AT4001248

furnaces with seals to ensure hermeticity of the system at relatively large displacements of the clamps of the testing machine, heating elements for the furnace, and control circuitry. Some operating features of the furnaces are discussed. Orig. art. has: 15 figures.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metalurgii (Central Scientific Research Institute of Ferrous Metallurgy)

SUBMITTED: 00

DATE ACQ: 10Dec63

ENCL: 02

SUB CODE: AP, MA

NO REF SOV: 006

OTHER: 000

Card

2/4

ACCESSION NR: AP4013314

S/0032/64/030/002/0228/0229

AUTHOR: Ovsyannikov, B. M.; Lebedev, D. V.; Melekhin, A. K.; Vol'nov, N. N.

TITLE: An installation for testing long range durability under vacuum at temperatures up to 1800C

SOURCE: Zavodskaya laboratoriya, v. 30, no. 2, 1964, 228-229

TOPIC TAGS: durability, durability test, long range durability, vacuum effect, temperature effect, vacuum oven, heated vacuum oven

ABSTRACT: The installation consisted of a two-section steel vacuum oven of cylindrical shape, 29 cm in diameter and 30 cm long, provided with a water jacket and two centrally located radiation heaters. By these means it was possible to bring the temperature up to 1300C within 20 minutes and to 1800C within 65 minutes. However, it was found that a too rapid rise of temperature caused an accelerated evolution of gases from the test samples placed in the oven, which affected the vacuum. A gradual step-by-step rise in temperature was found to be the proper procedure. An additional source of error in a vacuum of fluctuating magnitude was due to the presence of equalization loads of the leverage system of the testing machine. Figure 1 on the Enclosures gives the structural details of the vacuum oven, ~~etc~~

Card

Cent Sci Res Inst of Ferrous Metallurgy

MELEKHIN, A.N.

BOGOSLOVSKIY, Mikhail Alekseyevich, dots., kand.tekhn.nauk; DOMANEVSKIY,
N.A., kand.tekhn.nauk, retsenzent; SHIRLAIMOV, A.P., retsenzent;
~~MELEKHIN, A.N., retsenzent~~; VENDROV, S.L., kand.geograf.nauk, red.;
MAKRUSHINA, A.N., red.izd-va; SALAZKOV, N.P., tekhn.red.

[Waterways and ports] Vodnye puti i porty. Moskva, Izd-vo
"Rechnoi transport." Pt.1. [Investigation of waterways] Issledo-
vaniia vodnykh putei. 1957. 251 p. (MIRA 11:4)
(Inland navigation) (Hydraulic engineering)

L 26136-66 EWT(1)/FSS-2

ACC NR: AN6014207

(N)

SOURCE CODE: UR/9008/66/000/015/0002/0002

AUTHOR: Melekhin, B. (Major general of aviation, Aviation commander of northern troops, Pilot first class) 53
B

ORG: none

TITLE: Antiaircraft fire and aircraft tactics

SOURCE: Krasnaya zvezda, 20 Jan 66, p. 2, col. 3-6

TOPIC TAGS: defense radar, fighter bomber aircraft, antiaircraft defense, antiaircraft missile

ABSTRACT: The author discusses the problems which ground antiaircraft fire and interceptor aircraft pose for fighter-bombers and urges that pilots be instructed in the range of enemy ground-to-air missiles, radar, and interceptor aircraft and that more emphasis be placed on training pilots to evade enemy AA. It is noted that this and other problems are often approached on too broad a scale (i. e., in terms of a wing or squadron) and are neglected for smaller formations, e. g., a flight. In conclusion, the author laments the shortage of classroom training aids (mockups of AA batteries in firing position) which would show the pilot the proper altitude and flight position for attacking the target.

SUB CODE: 15/

SUBM DATE: 00/

ORIG REF: 000/

OTH REF: 000

Card 1/1

MELEKHIN, D., slesar'

Locks for current switches. Na stroi. Mosk. 1 no.8:27 Ag '58.
(MIRA 11:10)

1.SU-76 trest Mosotdelstroy No.1.
(Electric switchgear)

MELEKHIN, F.I., inzh.

Operation of conical crushers in a closed cycle and increasing
the production of fine crushed stone. Stroi. mat. 8 no.4:15-17
Ap '62. (MIRA 15:8)
(Crushing machinery) (Stone, Crushed)

MELMKHIN, G. P.

"Innervation of the Parotid Salivary Gland in a Horse and a Dog." Sub 18 Oct 51,
Moscow Chemicotechnological Inst of the Meat Industry

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

MELEKHIN, G.P.

Parasympathetic innervation of the parotid gland in dogs⁷. Arkh. anat.,
Moskva 30 no.4:53-56 July-Aug 1953. (CAML 25:4)

1. Of the Department of Anatomy and Physiology of Grodno Agricultural
Institute.

Country : USSR
Category : Farm Animals. Q
Cattle.
Abs. Jour : Ref Zhur-Biol., No 21, 1958, 96833
Author : Melekhin, G. P.
Institut. : Grodno Institute of Agriculture.
Title : The Secretion from the Parotid Gland in Young
Cattle Stock.
Orig Pub. : Tr. Grodnensk. s.-kh. in-ta, 1957, vyp. 3,
219-222
Abstract : A fistula was ~~instilled~~ ^{made} to the right parotid
gland of 2 calves (1 month and 2 years old).
Each minute of the test the saliva was collec-
ted by a sucking capsule which was connected
with Kamorskiy's vacuum pump by means of a
rubber tube. It was established that the secre-
tion level is influenced by age (secretion in-
creases with rprogressing age), the type of fod-
der and rumination time. The saliva origina-
ting from the parotid gland of calves is al-
ways transparent; it contains 0.92-1.10 percent

Card: 1/2

Country : USSR
Category : Farm Animals. Cattle. Q
Abs. Jour : Ref Zhur-Biol., No 21, 1958, 96833
Author :
Institut. :
Title :

Orig Pub. :

Abstract : of dry matter, 0.12-20 percent of organic substances and 0.82-0.91 percent of anorganic substances. The composition of the saliva changes little with age, type of fodder and the level of secretion.

Card: 2/2

20

MELEKHIN, I., michman

Light streams through little apertures. Starsh.--serzh. no.7:17
Jl '61. (MIRA 14:9)
(Medicine, Naval--Equipment and supplies)

MELEKHIN, K.I., inzh., red.; SERGEYEVA, A.I., inzh., red.; USENKO, L.A.,
tekh. red.

[Combined road planer and snow plow; construction features, operation, and repair] Strug-snegochistitel'; ustroistvo, ekspluatatsiia i remont. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei sqobshcheniia, 1961. 94 p. (MIRA 14:7)
(Snow plows) (Road machinery)

MELEKHIN, L.F., inzh.

Effective method of increasing the durability of woodcutting
saws. Der. prom. 12 no. 12:5-8 D '63. (MIRA 17:3)

1. Lesotekhnicheskaya akademiya im. S.M. Kirova.

ALEKSEYEV, Aleksey Vasil'yevich; MELEKHIN, Leonid Fedorovich;
BUNIMOVICH, L.D., red.

[Optimal conditions and cutting tools for working bent and
glued parts] Optimal'nye rezhimy i rezhushchii instrument pri
obrabotke gnuto-kleenykh detalei. Leningrad, 1964. 22 p.
(MIRA 18:2)

S/10/1 07/06/17
A125/A034

AUTHORS: Snopce, A.S. and Merzhin, L.Ya.

TITLE: A Mechanized Sandslinger Production Line

PERIODICAL: Liteynoye proizvodstvo, 1960, No. 7, pp. 14-17

TEXT: A detailed description of the design and operation of the equipment installed at the Elektrostal'skiy zavod bychelego mashinostroyeniya (Elektrostal' Plant of Heavy Machinery) is given. It consists of a hydraulically driven screw conveyor with 6 trolleys with 6 mask sections, a filter, a conveyor and a sanding drum. Dimensions of mask sections are: length 1,400 mm, width 1,000 mm, height 1,000 mm, and maximum weight 1,500 kg. The geometrical shape of the mask is 10-15 mm, and the capacity of mask section per hour. A special type of GEM sandslinger is used for the filling of mask sections. The filter speed is 0.5 rpm, conveyor speed 8 m/min and the trolley speed 1 m/min. Air consumption is 4 cu m/hour and the pressure 4.5 atz. Power of the screw motor is 40 kw, power of sanding motor 10 kw, and the

Automatized Sandpaper Production Line

3-1-1
10-5 A.31

The diameter of the rollers is 500 mm, the diameter of the rollers in the production line is 500 mm. The circumference of the rollers is 1570 mm. The length of the roller conveyor is 1000 mm and its width is 1000 mm. The diameter of the tilter is 5,000 mm, height above the floor is 1000 mm, weight of metal parts: 120 tons. The production line has 14 operating positions and is handled by two shifts of 11 men each. The yearly capacity of this equipment is 10,000 tons as compared to 1,000 tons produced in 1970. There are 4 figures.

Class 2.1

MELEKHIN, P.I.

USSR/General Division - History. Classics. Personalities.

A-2

Abs Jour : Ref Zhur - Biologiya, No 7, 10 April 1957, 25704

Author : Mokrov, I.F., Melekhin, P.I.

Inst : Moscow Academy of Veterinary Science

Title : Professor Serafim Vasilyevich Ivanov

Orig Pub : Tr. Mosk. vet. akad., 1956, 10, 309-310

Abst : This marks the 50th birthday and the 26th anniversary of the teaching and social activities of Professor Ivanov (born 1904) of the Moscow Academy of Veterinary Sciences, who has compiled and published a number of atlases of the anatomy of horses, cattle, swine, etc., as well as school guides to the anatomy of farm animals. Ivanov is also the co-author of several textbooks, among them the "Anatomy and Physiology of Farm Animals" (1951) and the "Anatomy of Horned Cattle" (1950).

Card 1/1

AKAYEVSKIY, A.I., prof.; KRINIT SIN, D.Ya., prof.; MELEKHIN, P.I., dotsent;
BYRDINA, A.S., red.; PEVZNER, V.I., tekhn. red.

[Anatomy and physiology of farm animals] Anatomia i fiziologiya
sel'khoziaistvennykh zivotnykh. Moskva, Gos.izd-vo sel'khoz.lit-
ry, 1960. 287 p. (MIRA 14:6)
(Veterinary anatomy) (Veterinary physiology)

MELEKHIN, P.I.

Sergei Nikolaevich Bogoliubskii; on his 75th birthday. Arkh. anat.
gist. 1 embr. 40 no. 1:125-126 Ja '61. (MIRA 14:2)
(BOGOLIUBSKII, SERGEI NIKOLAEVICH, 1885-)

AKAYEVSKIY, A.I., prof.; KRINITSYN, D.Ya., prof.; MELEKHIN, P.I.,
dots.; BYRDINA, A.S., red.

[Anatomy and physiology of farm animals] Anatomia i fi-
ziologiya sel'skokhoziaistvennykh zivotnykh. Izd.2.,
perer. i dop. Moskva, Kolos, 1965. 374 p.
(MIRA 18:7)

SOLOMKIN, P.S., prof.; TROKHIN, V.K.; IVASHCHENKO, S.A.; VASIL'KOV, G.V.;
KAMENSKIY, I.V.; MELEKHIN, P.I.

Reviews. Veterinaria 41 no.7:112-114 51 '64.

(MIRA 18:21)

L 20417-66 EWT(1)/EWA(h)

ACC NR: AP6009851

SOURCE CODE: UR/0413/66/000/004/0046/0046

AUTHOR: Malekhin, V. B.; Sakhno, N. G.

ORG: none

TITLE: Variable measuring capacitor,²⁵ Class 21, No. 178906

21
B

SOURCE: Izobreteniya, promyshlannyye obraztsy, tovarnyye znaki, no. 4, 1966, 46

TOPIC TAGS: capacitor, variable capacitor, measuring capacitor

ABSTRACT: A variable measuring capacitor with two axially mounted electrodes (see figure) is introduced. To ensure the measuring accuracy when the capacitor is used to determine both the dielectric permeability and loss tangent of liquid dielectrics, the inner electrode is demountable and consists of a hollow removable upper section and a solid lower section. The upper section of the outer electrode has an inner diameter larger than that of its lower section. Orig. art. has: 1 figure.

[JR]

Card 1/2

UDC: 621.319.43

L 20417-66

ACC NR: AP6009851

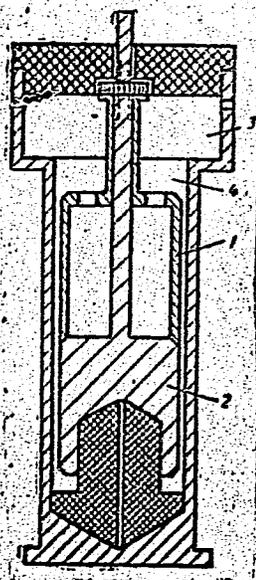


Fig. 1. Variable measuring capacitor

- 1 - Upper section; 2 - lower section;
- 3 - upper section of the outer electrode;
- 4 - lower section of the outer electrode.

SUB CODE: 09/ SUBM DATE: 02Apr65/ ATD PRESS: 4/222

Card 2/2 ULR

L 16796-66 EWT(1)/EWA(h) JXT(CZ)

ACC NR: AT6005079

SOURCE CODE: UR/2563/65/000/256/0102/0110

AUTHOR: Melekhin, V.F.

ORG: *none*

27
B+1

TITLE: Pulse shaper for current distributing circuits

SOURCE: Leningrad. Politeknicheskiiy institut. Trudy, no. 256, 1965. Tsifrovyye izmeritel'nyye i upravlyayushchiye ustroystva (Digital measuring and control devices), 102-110

TOPIC TAGS: switching circuit, pulse shaper, circuit design

ABSTRACT: The choice and calculation of shaper circuits depend on the required load, pulse duration, and maximum current amplitude. The volt-microsecond capacitance of ferrite windings should be reduced and large maximum voltages across transistors should be achieved. The switching time can be shortened by increasing the current of the base, and this leads to an increase in power needed for actuating the shaper. Since the volt-microsecond capacitance of the starter coil must be matched with the load capacity of the transmitting cell, the problems of the shortening of the switching on and

2

Card 1/2

L 16796-66

ACC NR: AT6005079

off times and of decreasing the capacity must be jointly studied and solved. The present article proposes several solutions for the 1) shaper circuit utilizing the transformer demagnetization energy for the shortening of the nonbase current carrier dissipation; and 2) setups reducing the volt-microsecond capacitance of the shaper starter coil and ferrite-transistor cell connected with conversion transistor incorporation into shaper circuits are also discussed, and the paper concludes with several constructive recommendations. Orig. art. has: 23 formulas and 5 figures.

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 004 /

Card 2/2 SM

L 44003-66 EWT(1)

ACC NR: AP6029943

SOURCE CODE: UR/0413/66/000/015/0109/0110

INVENTOR: Melekhin, V. F.; Tarabukin, V. I.

ORG: none

TITLE: Ferrite-transistor pulse shaper with combined feedbacks.
Class 42, No. 184518 [announced by Leningrad Polytechnical Institute
im. M. I. Kalinin (Leningradskiy politekhnicheskij institut)]

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 109-110

TOPIC TAGS: shaper, pulse shaper

ABSTRACT: A ferrite-transistor pulse shaper with combined current and voltage feedbacks is introduced. The shaper consists of a transistor, a transformer with a square-loop core containing write, priming, feedback, and base windings, and a resistance connected between the base and emitter of the transistor (see Fig. 1). To obtain the required functional dependence of the pulse width on the amplitude, to compensate for the effect of the parameter spread on pulse width, and to increase

Card 1/2

UDC: 681.142.07

L 44003-66

ACC NR: AP6029943

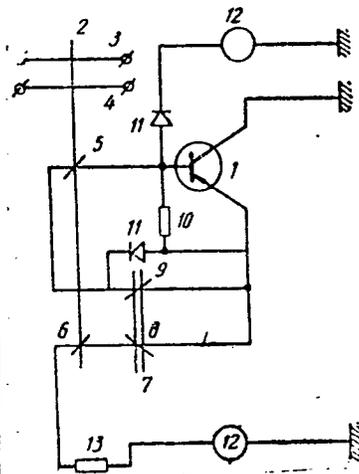


Fig. 1. Pulse shaper

- 1 - Transistor; 2 - transformer; 3 - priming winding; 4 - write winding; 5 - base winding;
- 6 - feedback winding; 7 - transformer;
- 8 - feedback winding; 9 - base winding;
- 10 - resistance; 11 - diodes; 12 - supply source; 13 - load.

the sensitivity, it also contains a controlled line transformer with feedback and base windings, as well as diodes. Orig. art. has: [JR]

SUB CODE: 09/ SUBM DATE: 16Jul65/ ATD PRESS: 5071

Card 2/2 blg

MELEKHIN, V.I.; KOSTETSKIY, P.S.

Installing an electric motor instead of an electromagnet on a
TC-1c one-process picker. Obm.tekh.opyt. [MLP] no.16:5-7 '56.
(MIRA 11:11)

(Cotton machinery--Electric driving)

MELEKHOV, Y.M.

5000

1955. Synthesis of 2:3:4:5-tetramethylhexane and 2:3:5-trimethylheptane. A. D. Petrov, Y. M. Melokhin, and V. L. Suslinakii. *Dokl. Akad. Nauk SSSR*, 1955, 69, 127-9.
 Condensation of 1-chloro-2-methylpentane-1 with Li, Na, or K under various temp conditions was studied; best results with K in Et₂O at 10° C. Diene fraction obtained hydrolyzed to yield 75% 2:3:4:5-tetramethylhexane (b.p. 123-5°C, n_D²⁰ 1.474, d₄²⁰ 0.7494) and 13% 2:3:5-trimethylheptane (b.p. 158.7°C, n_D²⁰ 1.4120, d₄²⁰ 0.7181); Raman spectra of these compounds recorded. Some 3:6-dimethyloctane was also produced (11%).
 V.B.

Handwritten initials

MELEKHIN, V. M.

"The Synthesis of Branched Aliphatic Hydrocarbons of C₁₀ -- C₂₀ Composition Through
Beta-Alkenylhalides." Cand Chem Sci, Moscow Order of Lenin¹⁰ Chemical Technological
Inst imeni D. I. Mendeleev, 29 Dec 54. (VM, 21 Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher
Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

Melekhin, V. M.

USSR/ Chemistry - Organic chemistry

Card 1/1 Pub. 40 - 26/26

Authors : Petrov, A. D.; Melekhin, V. M.; and Nefedov, O. M.

Title : Reaction of Mg-chlorisobutenyl with esters of palmitic and alpha-ethylcaproic acids

Periodical : Izv. AN SSSR. Otd. khim. nauk 2, 380 - 382, Mar-Apr 1955

Abstract : It was established experimentally that ester of palmitic acid (ethyl palmitate) reacts normally with Mg-chlorisobutenyl forming diisobutenylpentadecylcarbinol with a yield of 56%. The product obtained from the reaction of a methyl ether of a more low molecular but more branched acid is described. Five references: 2 USSR, and 3 English (1932-1953).

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Inst. of Organ. Chem.

Submitted : December 15, 1954

MELEKHIN, V. M.

5

CHV Synthesis of branched aliphatic hydrocarbons of composition $C_n - C_m$ from β -alkenyl halides. A. D. Petrov and V. M. Melekhin (D. I. Mendeleev Technol. Inst., Moscow). *Zhur. Obshchei Khim.* 29, 1227-34 (1955). The use of halides or ketones with a double bond in the β -position gave considerably better yields of branched hydrocarbons than are obtainable through a similar reaction sequence from saturated alkyl halides or ketones. While 3-chloro-2-methyl-1-butene suffers allylic shift in condensation with iso-PrAc, it does not suffer the shift in condensation with mesityl oxide or analogous ketones. To 50 g. Mg under Et₂O was added in 3 hrs. 90.5 g. isobutenyl chloride mixed with 110.5 g. C₆H₅Br in Et₂O and the mixture refluxed 40 hrs. and treated with aq. NH₄Cl gave 41% eicosane, m. 36°, 32 g. isobutyl, b. 113°, and 40.3 g. 2-methyl-1-tridecane, b. 105-6°, n_D²⁰ 1.4395, d₄ 0.7813, which hydrogenated over Raney Ni to 2-methyl-tridecane (I), f.p. -22°, b. 103-3°, n_D²⁰ 1.4273, d₄ 0.7615. I formed in 11.9 g. yield along with 11.3 g. eicosane and 14.2 g. isobutyl, b. 109°, in the reaction of 25 g. Mg with 46.3 g. iso-BuCl and 55.3 g. C₆H₅Br. To 73 g. Mg under Et₂O was added in 10 hrs. 378 g. C₆H₅Br and 196.3 g. mesityl oxide; after refluxing 30 hrs. the mixt. was treated with aq. NH₄Cl yielding 10 g. C₂₇H₅₆ and 169 g. 2,4-dimethyl-2-decane (II), b. 160-1°, n_D²⁰ 1.4518, d₄ 0.8473; dehydration of II with Ac₂O-NaOAc or with iodine gave 2,4-dimethyl-2,4-decadiene (the product formed by Ac₂O-NaOAc, b. 67-9°, n_D²⁰ 1.4437, d₄ 0.7812, that formed by iodine, b. 75-0°, n_D²⁰ 1.4442, d₄ 0.7818); hydrogenation over Raney Ni gave 2,4-

dimethyldecane, b. 74-5°, n_D²⁰ 1.4220, d₄ 0.7828, f.p. -84°. To RMgX from 25 g. Mg and 89.6 g. C₆H₅Br was added 44.2 g. mesityl oxide and the mixt., after refluxing 20 hrs., yielded an azeotropic mixt., b. 119.4-20.5°, of 1-heptene, mesityl oxide and 2-methyl-2-penten-1-ol; 2.3 g. tetrade-cane, and 42.8% 2,4-dimethyl-2-undecan-4-ol, b. 95-6°, n_D²⁰ 1.4580, d₄ 0.8530, which was dehydrated with Ac₂O-AcONa to 2,4-dimethyl-2,4-undecadiene, b. 76-8°, n_D²⁰ 1.4480, d₄ 0.7804. Hydrogenation over Raney Ni gave 2,4-dimethyl-undecane, b. 72-3°, n_D²⁰ 1.4285, d₄ 0.7637, f.p. -68°. C₆H₅MgBr from 25 g. Mg was treated with 85.2 g. iso-BuAc and after 20 hrs. refluxing, the mixt. yielded among other products 29.3% tertiary alc., b. 120-2°, n_D²⁰ 1.4472, d₄ 0.8421, which was dehydrated to 20.2 g. olefin, b. 101-3°, n_D²⁰ 1.4392, d₄ 0.7764, which hydrogenated to 2,4-dimethylundecane, b. 74-5°, n_D²⁰ 1.4258, d₄ 0.7618, f.p. -69.5°. C₆H₅Br from 25 g. Mg treated with 34.3 g. mesityl oxide and the mixt. refluxed as above gave 5 g. eicosane, 4,4-dimethyl-2-tetradecanone (2,4-dinitrophenyl-hydrazone, m. 172°) and 32.3% 2,4-dimethyl-2,4-tetradecadiene, b. 108-0°, n_D²⁰ 1.4906, d₄ 0.8114 (formed by dehydration of the alc. in the reaction), which was hydrogenated over Raney Ni to 2,4-dimethyltetradecane, b. 119-23°, n_D²⁰ 1.4340, d₄ 0.7757, f.p. -37.5°. To 50 g. Mg under Et₂O was added mixed 94 g. 3-chloro-2-methyl-1-butene and 72 g. 2,3-dimethyl-2-penten-1-one (b. 146-7°, n_D²⁰ 1.4472, d₄ 0.8678); after 70 hrs. stirring the hydrolyzed mixt. gave 48% 2,3,4,5,6-pentamethyl-1,5-heptadien-4-ol, b. 76-7°, n_D²⁰ 1.4710, d₄ 0.8833 (oxidation with KMnO₄ gave MeCO, HCO.H only). This refluxed 30 hrs. with Ac₂O-AcONa

OVER

①

AD P-TRCV

gave from 40 g. alcohol, 15.3 g. 2,3,4,5,6-pentamethyl-1,3,5-heptatriene, b. 56-6°, n_D^{20} 1.4650, d_4^{20} 0.8118, and 10.2 g. unchanged alc. Hydrogenation of the triene over Raney Ni gave a product with a residual double bond, b. 64-8°, which oxidized with $KMnO_4$ to iso-PrAc and 2,3-dimethyl-4-pentanone. Hydrogenation over Pd or SiO_2 at 124 atm. at 163° finally gave the desired 2,3,4,5,6-pentamethylheptane, b. 64-6°, n_D^{20} 1.4392, d_4^{20} 0.7838, f.p. below -80°. Similarly, 33.5 g. Mg, 36.6 g. 3-chloro-2-methyl-1-butene and 29.3 g. mesityl oxide gave 55.6% 2,3,4,6-tetramethyl-1,5-heptadiene-1-ol, b. 87-8°, n_D^{20} 1.4664, d_4^{20} 0.8395 (oxidation with $KMnO_4$ gave Me₂CO and Ac, HCO₂H, pyruvic acid, but no AcOH); dehydration of this as above gave 2,3,4,6-tetramethyl-1,3,5-heptatriene, b. 66°, n_D^{20} 1.4660, d_4^{20} 0.8333, which hydrogenated over Pd at 110° and 125 atm. to 2,3,4,6-tetramethylheptane, b. 173-4°, n_D^{20} 1.4301, d_4^{20} 0.7581. Mg (25 g.).

23 g. 3-chloro-2-methyl-1-butene, and 10.8 g. Me isopropenyl ketone, similarly gave 45.5% 2,3,4,7-tetramethyl-1,5-hexadiene-3-ol, b. 73-4°, n_D^{20} 1.4615, d_4^{20} 0.8792, which dehydrated with iodine to 2,3,4,5-tetramethyl-1,3,5-hexatriene, b. 154-5°, n_D^{20} 1.4580, d_4^{20} 0.8108, which hydrogenated over Pd at 160° and 170 atm. to 2,3,4,5-tetramethylhexane, b. 156°, n_D^{20} 1.4208, d_4^{20} 0.7563 (cf. C.A. 48, 3238f). To compare this prepn. with that using said. components, the Grignard reagent from 75 g. Mg and 104.6 g. 3-chloro-2-methyl-1-butene was treated with 63.8 g. iso-PrAc, yielding methyl-1-butene was treated with 63.8 g. iso-PrAc, yielding 34.7% product, b. 185-8°, and 8.3% product, b. 188-92°. Oxidation of the former fraction gave Ac₂ and iso-PrAc, as well as HCO₂H and AcOH; the results indicate that the product had the principal structure C·CMe·CMe·CMe(OH)·CHMe₂, mixed with the structure MeC·CMeCCMe(OH)·CMe₂, the latter being the principal component of the higher-boiling fraction of the alc. above. Also in J. Gen. Chem. U.S.S.R. 25, 1275-80(1955)(Engl. translation).
G. M. K.

34891

5/031/62/000/003/071/090
B143/B101

11 6170

OTRCRS: Zrelov, V. N., Melekhin, V. N.

TITLE: Investigation of the effect of organic nitrogen compounds on the corrosive activity and on the thermal stability of the fuels from sulfur-containing petroleum

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 3, 1962, 489, abstract 3M194 (Sb. "Khimiya sernorgan. soyedineniy, soderzhashchikhya v neftyakh i nefteproduktakh v. 4, M., Gosoptekhnizat, 1961, 236 - 244)

TEXT: Organic nitrogen compounds (li-octadecylamine, phenyl- α -naphthylamine, aniline, hexamethylene diamine, and others) were added to the fuels TS-1 (TS-1) and TS-2 (TS-2) with a high content of mercaptans (0.045 and 0.05%); these fuels have high corrosive activity and low thermal stability. The corrosive activity and the thermal stability of these fuels after addition of organic nitrogen compounds were determined by the "KCS" (KCS) method, at 120°C and in the presence of bronze BB-24 (VB-24) over a period of 6 hr. It was shown that hexamethylene diamine, benzidine, and 2-alkyl-
Card (1/2)

Investigation of the ...

S/O81/62/000/003/071/090
B149/B101

(C₀ - C₁₂)-imidazoline inhibited most effectively the corrosive activity of the above fuels; the addition of other organic nitrogen compounds to these substances usually increased their anticorrosive action, but in some occasions they inhibited it. The thermal stability of the fuels TS-1 and TS-2 is increased most effectively in the presence of aliphatic monoamines (dioctadecylamine, paraffinic methylamines), aromatic tertiary monoamines, and also some secondary aromatic monoamines, such as monomethylaniline and phenyl- α -naphthylamine. Joint addition to the fuel of the anticorrosive compounds studied and the substances inhibiting the formation of sediments does not promote simultaneous increasing of thermal stability and anticorrosive properties of the fuels. [Abstracter's note: Complete translation.]

Card 2/2

30201

S/080/61/034/011/014/020
D228/D301

11.013✓

AUTHORS: Zrelov, V.N., and Melekhin, V.M.

TITLE: Investigating the influence of phenol and amino compounds on the sediment-forming capacity of fuels containing cracking-components

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 11, 1961, 2537 - 2544

TEXT: The author present the results of their investigation into the influence on the sediment-forming capacity of aviation fuel of certain antioxidant ingredients: 6 phenols, 18 amines, 7 oxyamines, and 6 heterocyclic and other nitrogen-bearing compounds. The studied fuels which are used in gas-turbine engines, have a 30 % content of cracking-components and consists of two types: low sulfur Groznyy oil and Tatar oil containing 0.58 % S. The sediment forming capacity of these fuels was assessed at 120° by a method which also permits simultaneous determination of their corrosive aggressiveness and the magnitude of the deposit on the surface of

Card 1/3

30201

Investigating the influence of ...

S/080/61/034/011/014/020
D228/D301

BE-24 (VB-24) bronze. The experimental data suggest that such antioxidants have little effect on the sediment-forming capacity of both kinds of fuel. They cannot be employed together with metal deactivators; the addition of salicyliden-o-aminophenol, n-oxydiphenylamine, and shale- and coal-phenols diminishes the degree of sediment-formation in low-sulfur fuel, but the amount of material precipitated on the bronze - through the reaction of salicyliden-o-aminophenol with Cu - markedly increases at the same time. The greatest reduction of sediment that may be achieved by means of certain phenols, primary monoamines, polyamines, and aminophenols does not exceed 50 - 70 %. Moreover, only β -naphthol in a concentration of 0.001 % is equally effective for both types of fuel. Amines and oxyamines appear to be more efficient antioxidants for sulfurous fuel, while phenols are better in low-sulfur fuel-. But high concentrations of diatomic phenols increase the fuel's corrosive aggressiveness. With regard to heterocyclic and other nitrogen-containing compounds the least amount of residue was noticed in the presence of 0.005 % 2-alkyl($C_9 - C_{12}$) imidazolene and triaminotrimethyltrimethylene. In conclusion, the authors mention the

Card 2/3 X

30201

Investigating the influence of ...

S/080/61/034/011/014/020
D228/D301

high antisediment-forming capacity of the amide of stearic acid which prevents any deposition of sediment in hot fuel; however, it cannot be used in the case of hot fuel that is subsequently cooled to room temperature, since precipitation then takes place. There are 2 figures, 6 tables and 7 references: 1 Soviet-bloc and 6 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: C.R. Johnson et al, Ind. Eng. Chem. 46, 10, 2166, 1954; C.B. Biswell et al, Ind. Eng. Chem. 47, 8, 1598, 1955; H.I. Address, U.S.A. Pat. 2867515 (6.1.1959); D. Dubson, Petroleum 21, 4, 119, 1958.

SUBMITTED: October 31, 1960

Card 3/3

X

ZRELOV, V.N.; MELEKHIN, V.M.

Effect of esters and salts of hydroxy- and polyamines on the precipit-
ability and corrosion activity of fuels containing cracked constituents.
Zhur.prikl.khim. 36 no.2:389-394 F '63. (MIRA 16:3)
(Petroleum as fuel--Additives) (Corrosion and anticorrosives)
(Precipitation (Chemistry))

ZHILEYKO, G.I.; MELEKHIN, V.N.

Concentration of accelerated electrons in a field of a traveling
electromagnetic wave. Nauch.dokl.vys.shkoly; radiotekh. i
elektron, no.1:203-206 ' 58. (MIRA 12:1)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Electrons) (Radio waves)

54359

S/056/60
3004, B 171

26.2340

AUTHORS: Kapitsa, S. P., Bykov, V. P., Melakhin, V. N.

TITLE: A High-current Microtron /9

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
Vol. 39, No. 4(10), pp. 997-1000

TEXT: In the present work, the authors give data so far available on a new 5 - 15 Mev electron accelerator. A microtron with a pole piece diameter of 700 mm and pole separation of 110 mm was constructed. The source of high-frequency oscillations is a pulsed magnetron in the 10-cm range. The authors discuss the different types of resonators used in their experiments. Fig. 1 schematically shows the acceleration of electrons emitted by a cathode of lanthanum boride heated to 1600°C. For a field of 350 kv/cm in the resonator, the emission current density reached the value 200 a/cm². By means of another arrangement of the cathode in the resonator (Fig. 2), a current of 5 ma with an energy of 13 Mev and a magnetic field of 1950 oersteds could be obtained. The

Card 1/3

84399

A High-current Microtron

S/056/60/030/001/017-048
B004/B07C

efficiency was about 10%, and the efficiency of electron capture about 5%. The authors further discuss the motion of electrons in a resonator with a rectangular cross section. The new microtron can compete with linear accelerators and betatrons in the region of 50 - 100 Mev. Since the electron beam has a narrow spread of energy and momentum, the microtron can serve as an injector for large accelerators. A detailed description of the microtron and calculations will be provided shortly. A high-energy accelerator is being constructed. The authors mention papers of V. I. Veksler (Ref. 1), and Ye. M. Moroz (Ref. 6). They thank Academician P. L. Kapitza for his interest in the work, L. A. Vaynshteyn for discussions, G. P. Prudkovskiy for calculations on his trajectory graph, I. G. Krutikova for calculations on a "Strela" computer, and S. V. Melakhin and L. Zykin for help in the work. There are 2 figures and 6 references: 3 Soviet, 2 British, and 1 Canadian. X

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR
(Institute of Physical Problems of the Academy of Sciences,
USSR)

Card 2/3

01/04

A High-current Microtron

S/056/60/001/001/017/048
B004/B07

SUBMITTED: June 15, 1960

✓

Card 3/3

27186

S/056/61/041/002/007/028
B102/B205

26.2340

AUTHORS: Kapitsa, S. P., Bykov, V. P., Melekhin, V. N.

TITLE: An efficient high current microtron

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41,
no. 2 (8), 1961, 368 - 384

TEXT: Following a series of previous publications (Ref.10: ZhETF, 39, 997, 1960) the authors describe a microtron that has none of the deficiencies connected with electron injection, which are shown by conventional accelerators of this kind. Owing to the type of resonator developed by the authors (cf. Ref. 10), the electron injection from the hot cathode is directly under the action of the h-f resonator field. The new type which uses E_{010} oscillations, makes it possible to achieve pulsed currents of

20 ma at an energy of 7 Mev, and of 5 ma at 13 Mev. The electromagnet and the vacuum chamber of the accelerator are schematically represented in Fig. 1. Fields of up to 1500 oe in an area of 55 cm diameter were homogeneous up to some 10%. The magnet had a weight of 1.5 t, and generated

Card 1/6

27186

S/056/61/041/002/007/028
B102/B205

An efficient high current...

fields of up to 2000 oe at a current density of 3 a/mm^2 and an excitation power of 4 kw. The magnet was fed by a three-phase selenium rectifier which was stabilized up to 0.1%. The pressure in the chamber amounted to 10^{-5} mm Hg . The h-f field was generated by a standard magnetron with a modulator. The pulse duration was $3 \mu\text{sec}$ and the frequency 427 cps. Detailed information on the motion of electrons in the cylindrical resonator with E_{010} waves being generated in it was obtained by numerical integration of the equations of motion of electrons with the electronic computer "Strela". Fig. 2 illustrates the motion of electrons in the resonator. A cross-sectional view of the resonator is given in Fig. 3. Hot cathodes of LaB_6 proved most convenient. The characteristic parameters of the accelerator in its two modes of operation (20 and 5 ma) are listed in Tables 1 and 2. The efficient electron accelerator described here can compete well with lineacs in the low-energy range. Its advantage lies in the constant energy of the beam, its "packing", its high reliability, and in its simple design. The authors thank P. L. Kapitsa, A. A. Kolosov, and S. V. Melekhin for as-

X

Card 2/6

27186

S/056/61/041/002/007/028
B102/B205

An efficient high current...

assistance, S. I. Filimonov for his interest in the work, G. P. Prudkovskiy and L. A. Vaynshteyn for a discussion, and Engineer L. Zykin for assistance in the construction of the microtron. In an appendix, a detailed report on the calculation of the motion of electrons in the microtron is given by S. P. Kapitsa, V. N. Melekhin, I. G. Krutikova, and G. P. Prudkovskiy for the case of a cylindrical and a rectangular resonator. The authors of the appendix thank P. L. Kapitsa and Ye. S. Kuznetsov for their interest in the work, M. M. Antimonik for programing the computations, and V. P. Bykov and L. A. Vaynshteyn for discussions. V. I. Veksler is mentioned. There are 13 figures, three tables, and 21 references: 9 Soviet and 12 non-Soviet. The two most important references to English-language publications read as follows: C. Henderson et al. Proc. Phys. Soc. B66, 41, 1953; J. S. Bell. Proc. Phys. Soc. B66, 802, 1953.

ASSOCIATION: Fizicheskaya laboratoriya Institut fizicheskikh problem Akademii nauk SSSR (Physical Laboratory of the Institute of Physical Problems of the Academy of Sciences USSR)

SUBMITTED: March 28, 1961

Card 3/6

34654

S/056/62/042/002/046/055
B108/B138

24.6730

AUTHOR: Melekhin, V. N.

TITLE: Vertical focusing in a microtron

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42
no. 2, 1962, 622 - 624

TEXT: The focusing capacity of the accelerating cavity of a large microtron can be improved by changing the shape of the (usually circular) flight holes. A simple calculation shows that a horizontal slit has twice the focusing effect on electrons of a round hole. The vertical electron motion is calculated assuming that the inhomogeneous electric field at the slit is spatially small compared with the thickness of the cavity. Denoting the vertical coordinate and the momentum of an electron at the cavity entrance before its n-th orbit by z_n and p_n , after the orbit by z_{n+1} and p_{n+1} , respectively, such that

$$\begin{pmatrix} z_{n+1} \\ p_{n+1} \end{pmatrix} = \begin{pmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{pmatrix} \begin{pmatrix} z_n \\ p_n \end{pmatrix}$$

Card 1/3

Vertical focusing in a microtron

S/056/62/042/002/046/055
B108/B138

are stable oscillations $z_n = b \cos(\nu n + \delta)$ where $\cos \nu = S/2$
($S = a_{11} + a_{22}$), and dropping terms of the order $1/n$ which is possible for
great n , i.e. high electron energies, one obtains
 $S = 2 + \pi [1 - (\alpha' + \alpha'')] \tan \varphi_s + \pi(\alpha'' - \alpha') \cot(\omega L/2c)$ where φ_s is the
equilibrium phase $0 < \varphi_s < \arctan(2/\pi)$, L is the thickness of the cavity. X

The parameter α is determined by the shape of the opening. Primed quantities refer to the entrance and double primed quantities to the outlet of the cavity. $\alpha = 1$ in the case of a horizontal slit and for a vertical slit $\alpha = 0$. A circular opening means that $\alpha' = \alpha'' = 1/2$. Preliminary experiments confirmed the correctness of the calculations and the stability of electron acceleration in the case of small energies. Academician P. L. Kapitsa, S. P. Kapitsa, L. A. Vaynshteyn, and V. P. Bykov are thanked for assistance and discussions. There are 1 figure and 6 references: 3 Soviet and 3 non-Soviet. The 2 references to English-language publications read as follows: J. S. Bell. Proc. Phys. Soc., B66, 802 1953; D. K. Aitken et al. Proc. Phys. Soc., 77, 769, 1961.

Card 2/3

Vertical focusing in a microtron

S/056/62/042/002/046/055
B108/B138

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR (Institute
of Physical Problems of the Academy of Sciences USSR)

SUBMITTED: September 22, 1961

X

Card 3/3

L 4239-66 EWT(m)/EPA(w)-2/EJA(m)-2 IJP(c) GS

ACCESSION NR: AT5007975

S/0000/64/000/000/1049/1052

32
BT

AUTHOR: Zykin, L. M.; Kapitsa, S. P.; Melekhin, V. N.; Nedelyayev, A. G.

TITLE: Microtron with large current

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963.
Trudy. Moscow, Atomizdat, 1964, 1049-1052

TOPIC TAGS: high energy accelerator, electron accelerator, electron beam

ABSTRACT: The present report expounds the principal results which have been obtained in recent years in the study and design of microtrons at the Institute of Physical Problems im. S. K. Vavilov, Academy of Sciences SSSR, and discusses the principal properties of accelerators of this type. Until recently the microtron did not attract great attention as an electron accelerator, mainly by virtue of the small beam intensity which is obtained by this type of accelerator. However, works conducted in the physical laboratory of the mentioned institute have led to new methods for the introduction of electrons into the acceleration regime and have thus opened an approach to the new development of this accelerator (Kapitsa, S. P.; Bykov, V. P.; Melekhin, V. N. *ZhETF* 41, 368 (1961)). The basis for the perfection of the microtron is the application of resonators of plane cylindrical

Card 1/3

L 4239-66

ACCESSION NR: AT5007975

or rectangular form, in which fields of the type E_{010} and E_{011} respectively are excited. Electron emission ordinarily occurs directly under the action of the electrical super-high frequency field of the resonator with emitter, which is arranged on the plane wall of the resonator on the side from the passage apertures. Entrapment of the electrons into the microtron acceleration regime can occur in several ways, designated trajectories of the first and second types. During acceleration in the first regime, in which the cathode is situated approximately at half of the radius of the resonator, an electron acquires energy around $\Delta E \sim mc^2$ at each passage through the flight interval. The precise value of the energy is determined by the value of the magnetic field, more correctly by the ratio of the magnetic field to its cyclotron value $H = \frac{2\pi mc^2}{e\lambda}$. For given geometry this ratio

$\Omega = H/H_0$ can vary within wide limits ($0.8 < \Omega < 1.6$), thus permitting continuous variation of the energy at output from the machine up to double, with unvaried position and number of orbits. In the second regime the cathode is placed close to the resonator axis and the electron increases its energy by $\Delta E \sim 2mc^2$ for each passage through the flight interval. The dimensions of the resonator, position of the emitter and the fraction of particles entrapped into the acceleration regime

Card 2/3

L 4239-66

ACCESSION NR: AT5007975

are determined on the basis of numerical calculations (*ibid.* p. 376). In comparison with linear accelerators, the incomparable advantage of the microtron is its simplicity, especially of its high-frequency part. In the microtron one can apply self-exciting nonreconstructed magnetrons which are distinguished by simplicity and reliability along with excellent effectiveness. Prospects are good for the application of powerful super-high frequency accelerators, particularly magnetron ones, whose feedback circuit is closed through the accelerator resonator. At the current level of technical development of continuous super-high frequency generation, prospects are also very good for the construction of continuous-action microtrons with beam power in the tens of kilowatts. Orig. art. has: 2 figures.

ASSOCIATION: Institut fizicheskikh problem imeni S. K. Vavilova AN SSSR (Institute of Physical Problems, AN SSSR)

SUBMITTED: 26May64

ENCL: 00

SUB CODE: NP

NO REF SOV: 005

OTHER: 000


Card 3/3

L 4234-66 EWT(m)/EFA(w)-2/EWA(m)-2 IJP(c) GS
ACCESSION NR: AT5007976

S/0000/64/000/000/1053/1055

21
20
BT/1

AUTHOR: Melekhin, V. N.

TITLE: Dynamics of electrons in the microtron 19

SOURCE: International Conference on High Energy Accelerator. Dubna, 1963.
Trudy. Moscow, Atomizdat, 1964, 1053-1055

TOPIC TAGS: high energy accelerator, focusing accelerator, electron accelerator

ABSTRACT: The present report presents the principal results of an investigation on radial and vertical focusing in the microtron and the results obtained from numerical computations of electron movement in the microtron resonator. In comparison with other cyclic accelerators the microtron possesses a number of specific features which lead to unusual particle dynamics. The microtron is an accelerator with variable multiplicity in which the accelerating field is large and the particle is supplied at each revolution with energy close to its rest energy. The magnetic field in the microtron is homogeneous and the focusing is realized by the accelerating field of the resonator. Earlier the microtron resonator employed circular through-flight apertures. Calculation of the focusing and experience gained with operations with microtrons showed that in this case the vertical focusing

Card 1/3

L 4234-66

ACCESSION NR: AT5007976

quickly deteriorates with increasing energy of the accelerated particles. The author has proposed a new method of improving the vertical focusing (ZhETF 42, 622 (1962)). It consists in the replacement of the circular through-flight apertures by slit-shaped apertures of definite orientation. A theoretical study was conducted of the vertical and radial focusing in the general case for arbitrary shape of the through-flight apertures in a cylindrical or rectangular resonator, taking into consideration the influence of the phase oscillations upon focusing. Calculation of the focusing was carried out by a matrix method similar to that used in the calculation of rigid-focusing accelerators. Computations showed that optimum vertical focusing is realized if the through-flight apertures possess the following form: circular aperture at the input and vertical slit at the output end of the resonator. Union of a horizontal slit at the input and circular aperture at output, and also the combination of two horizontal slits also ensure the stability of vertical motion. In all these cases the period of vertical oscillations amounts to about 4-6 revolutions; thus the frequency and amplitude of the oscillations do not vary with the increasing energy of the accelerated particles. And thanks to the application of new-type accelerating resonators, an effective entrapment of electrons into the acceleration regime has been successfully realized in the mi-

Card 2/3

L 4234-66

ACCESSION NR: AT5007976

crotron at the Institute of Physical Problems im. S. K. Vavilov. The present report gives the principal computed operational states of the microtron which are most important in practical matters. All have been realized and studied experimentally (*ibid.* 41, 368 (1961)). The good agreement of computed results and experiments conforms the correctness of the original data and the calculations and points to the possibility of finding the optimum parameters of the microtron by calculation. Orig. art. has: 1 table.

ASSOCIATION: Institut fizicheskikh problem imeni S. I. Vavilov AN SSSR (Institute of Physical Problems, AN SSSR)

SUBMITTED: 26May64

ENCL: 00

SUB CODE: NP

NO REF SOV: 004

OTHER: 000


Card 3/3

(3)

I. 22417-66 EWT(m)/EPF(n)-2/ENG(m) WW

ACC NR: AP6007943 SOURCE CODE: UR/0089/66/020/002/0106/0111

AUTHORS: Anan'yev, V. D.; Antsupov, P. S.; Kapitsa, S. P.;
Melekhin, V. N.; Kharr'yuzov, R. V.; Mator, I. M.;
Merkulov, L. A.SD
#3
B

ORG: none

TITLE: 30 Mev microtron injector for a fast-neutron pulsed reactor

SOURCE: Atomnaya energiya, v. 20, no. 2, 1966, 106-111

19

TOPIC TAGS: linear accelerator, particle accelerator component,
fast neutron, fast reactor/~~xxx~~

ABSTRACT: The authors describe briefly the main features and parameters of the 30-Mev microtron injector (linear-accelerator injector) now in operation at the Laboratory of Neutron Physics of OIYaN. The use of a microtron helps greatly reduce the duration of the reactor activity burst and by the same token improve the resolution attainable with fast-neutron experiments, since the reactor does not become supercritical and serves only as a neutron multiplier.

2

Card 1/2

UDC: 621.384.611.3

L 22417-66

ACC NR: AP6007943

The microtron is identical in design with that of the IFP (L. M. Zykin et al., Transactions of International Conference on Accelerators, Dubna, 1963, p. 1049). The individual units of the microtron as modified to operate with the IBR reactor are described briefly, together with the results of approximately 350 hours of operation. The electron current, separated and focused on a remote target, reaches 60 ma in pulse. An original optical system for extraction, focusing, and aiming the beam on the target, together with the good monochromatic properties of the beam (energy scatter 0.3%) and small angle divergence ensure 100% efficiency of utilization of electrons remaining in the last (thirtieth) orbit. The authors thank D. I. Blokhintsev, P. L. Kapitsa, I. M. Frank, and F. L. Shapiro for continuous interest and help, and S. K. Nikolayev, B. I. Voronov, and B. N. Bunin, whose cooperation contributed to the construction of the accelerator. Orig. art. has: 6 figures

SUB CODE: 18 SUBM DATE: 09Aug65/ ORIG REF: 003/

Card 2/2 (u)

MELEKHIN, V.T., inzh.; GREKOV, V.I., inzh.

Problem of the standardization of power rates in enterprises
manufacturing a wide range of products. Prom. energ. 19 no.12:
2-3 D '64. (MIRA 18:3)

ZANDE, I., akad. darbin. rakst. savieniba. [Latvian Academy of Sciences, Latvian Academy of Sciences, Acad. Sci. Publ.], Riga, Latvija, 1974. 194 p. [in Latvian].
red.; BIRZINIS, K., akad. darbin. rakst. savieniba. [Latvian Academy of Sciences, Latvian Academy of Sciences, Acad. Sci. Publ.], Riga, Latvija, 1974. 194 p. [in Latvian].

[Economically useful plants; Tautsaimnieciba. [Economic Botany], Riga, Latvija, 1974. 194 p. [in Latvian].

1. Akademiya nauk Latvysk y SSRS [Latvian Academy of Sciences] (for Piterburg).

Melekhina, L. S.

Low-temperature hydrogenation of fats in solvents on a skeleton nickel catalyst. D. V. Sokolskii and L. S. Melekhina (*Dokl. Akad. Nauk, SSSR*, 1953, 90, 881-883). Hydrogenation of linseed and cottonseed oil between 0 and 80° is investigated in the presence of a Ni catalyst. The rate of hydrogenation is increased by the presence of a solvent in the following order of effectiveness: xylene, benzene, toluene. The max. occurs with benzene at 30-40°, with toluene at 50-70°. The rate increases also with the concn. of catalyst and the increase is most pronounced at temp. at which the max. occur. The most favourable oil: solvent ratio is 1:1 to 1:2. Energy of activation at 30-50° is ~9000 cal./mol. J.A.C. ABSTR.

MELEKHINA, L. S.

Chemical Abstracts
May 25, 1954
Dyes and Textile Chemistry

3
Low-temperature hydrogenation of vegetable oils in solvents. D. V. Sokol'skiĭ and L. S. Melekhina. *Izvest. Akad. Nauk Kazakh. S.S.R. No. 125, Ser. Khim. No. 7, 20-9 (1953)*.—Hydrogenation of linseed and cottonseed oils at 30-60° with Raney Ni catalyst is more rapid in nonpolar or weakly polar solvents (benzene or toluene) than without solvent. In benzene the optimum temp. is 30°; in toluene it is 60-70°. G. M. Kosolapoff

11-11-54

Melekhina, L.S.
SOKOL'SKIY, D.V.; MELEKHINA, L.S.; PERUNOVA, L.I.

Effect of the nature of the solvent on the kinetics of hydrogenation
of cottonseed oil. Zhur.prikl.khim. 30 no.12:1799-1806 D '57.
(MIRA 11:1)

(Solvents) (Hydrogenation) (Cottonseed oil)

~~MELEKHINA, L.S.~~ SOKOL'SKIY, D.V.

Potentiometric investigation of the hydration of fats. Izv.
AN Kazakh.SSR.Ser.khim. no.2:32-34 '59. (MIRA 12:8)

1. Kafedra biokhimii Kazakhskogo meditsinskogo instituta i
Kafedra kataliza Kazakhskogo gosudarstvennogo universiteta.
(Hydration) (Oils and fats)

MELEKHINA, L.S.; SOKOL'SKIY, D.V.

Kinetics of the hydration of methyl esters of oleic and linoleic acids and their mixtures. Izv. AN Kazakh. SSR. Ser. khim. no. 2:35-40 '59. (MIRA 12:8)
(Oleic acid) (Linoleic acid) (Hydration)

TARASEVICH, N.I., SEMENENKO, K.A., MOLEKHINA, N.F.

Spectral determination of niobium and tantalum impurities in
titanium. Vest. Mosk. un. Ser. 2: khim. 15 no.2:64-68 Mr-Apr '60.
(MIRA 13:6)

1. Kafedra analiticheskoy khimii Moskovskogo universiteta.
(Niobium--Spectra) (Tantalum--Spectra) (Titanium--Analysis)

18 3100

1087

1075/61 - 1076/009/013
1077/016

AUTHORS: Mikhaylov, V. A., Tarsov, I. I., ~~et al.~~

TITLE: Extraction of nitrates of rare-earth elements by means of tributyl phosphate in the presence of Trilon B

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 11, 1961, 1457-1465

TEXT: Complex-forming substances have often been used for the chromatographic separation of rare-earth elements (REE). The effect of the complex-forming substance in the aqueous phase on the separation of the REE in the system: tributyl phosphate (TBP) - mole solution NH_4NO_3 - $\text{La}(\text{NO}_3)_3$ - Trilon B has been studied. The following holds for the distribution of an REE nitrate present in one phase, to two phases of equal volume: $E = c_{\text{org}}/c_w$ (1), where E is the REE distribution coefficient in the presence of Trilon B; c_{org} the equilibrium concentration of the element in the organic phase; c_w the equilibrium concentration of the element in the aqueous phase. In the aqueous phase, the following ions are in

Card 1/9

2006

8/078/61/006/006/102/013
E-10/B206

Extraction of nitrates of the rare-earth ...

equilibrium: $Me^{3+} + MeY^- \rightleftharpoons Me(NO_3)_j^{3-j}$. Therefore, $E = \frac{c_{org}}{c_{in}} \left(\frac{Me^{3+}}{Me^{3+} + \sum_j \frac{K_{PrY}}{K_{MeY}} \frac{[NO_3^-]^j}{[Y^-]^{j-1}} [Me^{3+}]^{1-j}} \right)^{1/n}$

+ $\sum_j \frac{K_{PrY}}{K_{MeY}} \frac{[NO_3^-]^j}{[Y^-]^{j-1}} [Me^{3+}]^{1-j}$ (6) holds, where K_j are the full stability constants of the nitrate complexes of the type $Me(NO_3)_j^{3-j}$, n the quotient from Trilon concentration in aqueous phase and initial REE concentration ($n = c_{tr}/c_{in}$): $n = 1/(1 + E) + (E/c_{tr}) \cdot E$ (12), where E can be considered an empirical constant. The following is written for the distribution coefficient of two REE nitrates $Pr(NO_3)_3$ and $Nd(NO_3)_3$:

$$S_{Pr, Nd} = \frac{\frac{3_{Pr}}{3_{Nd}} \frac{1 + K_{PrY}}{1 + K_{NdY}}}{1 - \frac{\sum_j \alpha_j^{Pr} [NO_3^-]^j}{1 + \sum_j \alpha_j^{Pr} [NO_3^-]^j}} \quad (16)$$

where the degree of complex formation $\alpha_j = \frac{K_j [NO_3^-]^j}{1 + \sum_j K_j [NO_3^-]^j}$ and $S_{Pr, Nd}$ is the separation effectiveness without Trilon. $S_0 = \frac{3_{Pr}}{3_{Nd}}$. The following holds for great

2098

Extraction of nitrates of the rare earth

concentration of the complex-forming substance $[Pr(NO_3)_3]_{org} = K_{Pr} \cdot [Pr^{3+}]_{aq} \cdot [S_0]_{org}^2$
 $[Pr^{3+}]_{aq} = \frac{[Pr(NO_3)_3]_{org}}{K_{Pr} \cdot [S_0]_{org}^2}$ The total concentration of the rare earth in the aqueous phase
is given by $[Pr]_{aq} = [Pr^{3+}]_{aq} + [Pr(NO_3)_3]_{aq}$ For $[S_0]_{org} \gg [Pr]_{aq}$ the complex-forming substance does not
or reduce the separation coefficient of a mixture in the stability
constants; for $[S_0]_{org} \ll [Pr]_{aq}$ it always increases it. The above equation can also
serve for calculating the biggest possible separation coefficient in the
presence of the complex-forming substance. The values of the separation
used for separating the nitrates of the rare earth elements of the heavy
elements, those of the yttrium group were generally low. The standard
concentration, were determined by the gravimetric method. The rare earths were in
 NH_4NO_3 solution, and TBP washed out with 10% solution and after
equilibrium with the 8% NH_4NO_3 solution were used, and the amount of
the TBP in solution was determined by the use of the color reaction. The
REE transition into the organic phase took a quantitative course. The
equilibrium concentration of the REE ions was determined by means of
oxalate precipitation, the individual REE elements spectrochemically by
Card 3/9

23083

3/278/61/098/00513R001033330006-2
BND 3206

Extraction of nitrates of the rare-earth elements

means of the MCF-87 (ISP-67) spectrophotometer, and for La-Nd by means of the CQ-4 (SF-4) spectrophotometer. The pH values were determined by means of a lamp potentiometer with quinhydrone electrode. Table 1 shows the mean values from 4-9 parallel experiments without Trilon B. Inversion of the extractability was established for heavy REE as well as for HNO_3 concentration (H McKay et al., J. Inorg. and Nucl. Chem. 21, 199 (1949)) (Fig. 1). In conformity with the ionic radius, yttrium is placed between dysprosium and holmium. A. K. Lashukhina and Chy. E. G. (Ref. 8 Radickhimiya 1, 530, (1949)) have shown that the Ce(III) distribution coefficient does not depend on the Ce(III) concentration for the TRP extraction from solutions with great ionic strengths and mole HNO_3 in the concentration range concerned. Table 2 shows the results obtained under the same conditions in the presence of Trilon B. The pH value dropped from 4.5 to 2 through complex ion formation. β fluctuated between 95 and 100%. Fig. 2 shows the curves of the distribution coefficients calculated by means of the constant β obtained according to Eq. (2). The increase of the pH leads to the reduction of the distribution coefficient β through displacement of the equilibrium $\text{Me}^{3+} + \text{H}_2\text{O} \rightleftharpoons \text{Me}^{2+} + \text{H}^+$.

(1949)) (Fig. 1). In conformity with the ionic radius, yttrium is placed between dysprosium and holmium. A. K. Lashukhina and Chy. E. G. (Ref. 8 Radickhimiya 1, 530, (1949)) have shown that the Ce(III) distribution coefficient does not depend on the Ce(III) concentration for the TRP extraction from solutions with great ionic strengths and mole HNO_3 in the concentration range concerned. Table 2 shows the results obtained under the same conditions in the presence of Trilon B. The pH value dropped from 4.5 to 2 through complex ion formation. β fluctuated between 95 and 100%. Fig. 2 shows the curves of the distribution coefficients calculated by means of the constant β obtained according to Eq. (2). The increase of the pH leads to the reduction of the distribution coefficient β through displacement of the equilibrium $\text{Me}^{3+} + \text{H}_2\text{O} \rightleftharpoons \text{Me}^{2+} + \text{H}^+$.

in the concentration range concerned. Table 2 shows the results obtained under the same conditions in the presence of Trilon B. The pH value dropped from 4.5 to 2 through complex ion formation. β fluctuated between 95 and 100%. Fig. 2 shows the curves of the distribution coefficients calculated by means of the constant β obtained according to Eq. (2). The increase of the pH leads to the reduction of the distribution coefficient β through displacement of the equilibrium $\text{Me}^{3+} + \text{H}_2\text{O} \rightleftharpoons \text{Me}^{2+} + \text{H}^+$.

Card 4/9

40003

Extraction of nitrates of the rare-earth ... S/078/61/006/006/009/013
B110/B206

to the right. The comparison of S and F_0 in Table 8 shows that Trilon B does not facilitate the separation of the REE of the cerium group, but facilitates that of La-Nd considerably. The separation of the REE of the yttrium group is also facilitated. In the series Ho - Yb Trilon B raises the distribution coefficient by 2.5 to 3 times. S amounts thereby to 3 - 3.5 for a few neighboring elements. The authors thank V.K. Val'tsev for his collaboration. There are 4 figures, 8 tables, and 9 references: 4 Soviet-bloc and 5 non-Soviet-bloc. The references to the English-language publications read as follows: Ref. 3: D. Scargill et al.: J. Inorg. and Nucl. Chem., 4, 304 (1957). Ref. 6: C. V. Banks et al. Analyt. Chem., 30, 1792 (1958). Ref. 9: E. J. Wheelwright: J. Amer. Chem. Soc., 75, 4196 (1953).

ASSOCIATION: Institut neorganicheskoy khimii-Sibirskoye otdeleniye
Akademii nauk SSSR (Institute of Inorganic Chemistry,
Siberian Branch AS USSR)

SUBMITTED: May 9, 1960

Card 5/9

MELEKHINA, V., inzh.; KRIVOBORODENKO, A., master

Attaching a flexible shaft to an electric motor by means of
a sleeve. Mas. ind. SSSR 29 no. 4:47 '58. (MIRA 11:8)

1. Khabarovskiy myasokombinat.
(Shafting)

MELEKHINA, V.; KRIVOBORODENKO, A.

Machine for cutting cellophane. Mias.ind.SSSR 30 no.6:45 '59.
(MIRA 13:4)

1. Khabarovskiy myasokombinat.
(Meat industry--Equipment and supplies)

MELEKHINA, V.; KRIVOBORODENKO, A.

Knife for opening tin cans. Mias.ind.SSSR 31 no.1:51 '60.
(MIRA 13:5)

1. Khabarovskiy myasokombinat.
(Khabarovsk--Tin cans)

EXCERPTA MEDICA Sec 17 Vol 5/3 Public Health Mar 59

1041. THE MAXIMUM PERMISSIBLE CONCENTRATION OF FORMALDEHYDE
IN THE ATMOSPHERIC AIR (Russian text) - Melekhina V. P. - GIG.I
SAN. 1958, 8 (10-14) Graphs 2 Tables 2

The author studied formaldehyde as an atmospheric pollutant. The effect of small doses on health in man was also determined. Investigation of a chemical plant producing formaldehyde showed that the atmospheric air in its vicinity was polluted with formaldehyde up to a distance of 1,000 m. Motorcar exhaust gases also contain formaldehyde. The author determined that the threshold for formaldehyde smell for the majority of people is 0.07 mg./cu. m. The threshold for reflex action, as determined by the method of optic chronaxy, is 0.08 mg./cu. m., and by the method of adaptometry - 0.008 mg./cu. m. Consequently the maximum permissible concentration of formaldehyde in air, considering the coefficient of reserve, may be taken to be not more than 0.035 mg./cu. m. at any time.

Chair Communal Hygiene, Cent Inst.

Advanced Training of Physicians

MELEKHINA, V. P.: Master Med Sci (diss) -- "The problem of the maximum permissible concentration of formaldehyde in the atmospheric air". Moscow, 1959. 12 pp (Min Health USSR, Central Inst for the Advanced Training of Physicians), 200 copies (KL, No 14, 1959, 123)

MELEKHINA, V.P.; Prinimali uchastiye: DYUZHEVA, Yu.V., khimik; AGISHEVA,
A.S., khimik; KUKAINA, V.P., khimik; KOSENKOVA, A.M., khimik

Materials for setting up a sanitary protective zone for Klin
Thermometer Manufacturing Factory. Uch. zap. Mosk. nauch.-issl.
inst. san. i gig. no.6: 41-44 '60. (MIRA 14:10)

1. Klinskaya sanitarnaya epidemiologicheskaya stantsiya (for Agisheva).
2. Moskovskaya oblastnaya sanitarnaya epidemiologicheskaya stantsiya
(for Kukaina, Kosenkova). 3. Moskovskiy nauchno-issledovatel'skiy
institut sanitarii i gigiyeny imeni F.F.Erismana (for Dyuzheva).
(KLIN--AIR--POLLUTION) (MERCURY--TOXICOLOGY)

MELEKHINA, V.P.

Hygienic basis for sanitary protection from factories manu-
facturing apparatus containing mercury. Gig.i san. 25 no.7:71-
74 JI '60. (MIRA 14:5)

1. Iz Moskovskogo nauchno-issledovatel'skogo instituta sanitarii
i gigiyeny imeni F.F. Erismana Ministerstva zdravookhraneniya
RSFSR.

(INDUSTRIAL HYGIENE) (MERCURY—TOXICOLOGY)

MELEKHINA, V.P.; PINIGIN, M.A.; Prinimali uchastiye: KHRUSTALEVA, V.A.;
SELINA, I.A.; VULIKH, S.L.; PANOVA, M.K.; LUZHNOVA, M.A.; BUNIM, T.N.

Materials for evaluating the pollution of air by wastes in the
production of phenol and acetone by the cumene method. Uch.
zap. Mosk. nauch.-issl. inst. san. i gig. no.9:25-29 '61.
(MIRA 16:11)

1. Moskovskiy nauchno-issledovatel'skiy institut gigiyeny
imeni F.F.Erismana (for Khrustaleva, Selina). Sotrudniki sa-
nitarno-epidemiologicheskoy stantsii goroda Groznogo (for Vulikh,
Panova, Luzhnova, Bunim).

*

MELEKHINA, V.P., kand.med.nauk

Hygienic evaluation of formaldehyde as an atmospheric pollutant.
Pred.dop.kontsent.atmosf.zagr. no.6:16-30 '62. (MIRA 15:9)

1. Iz kafedry kommunal'noy gigiyeny Tsentral'nogo instituta
usovershenstvovaniya vrachey.
(AIR—POLLUTION) (FORMALDEHYDE—PHYSIOLOGICAL EFFECT)

CA MELEKHINA, Ye. V.

Determination of the molecular weights of polymers formed at different stages of polymerization. Polymerization of styrene in the presence of quinone. E. V. Kuvshinskii and E. V. Melikhina (Acad. Sci., U.S.S.R., Leningrad). *Zhur. Fiz. Khim.* 24, 199-201 (1950).— The characteristic viscosity of the polymer forming when the percentage polymerized increases from x to $x + dx$ is given by $[\eta] = [\eta] + x d[\eta]/dx$; $[\eta]$ is the characteristic η of the mixt. at $x\%$ polymerized. The equation shows, e.g., that, when $d[\eta]/dx$ is const., the mol. wt. of the polymer is independent of x , contrary to Goldfinger, *et al.* (*C.A.* 38, 10454).
J. J. Bikerman

AUTHORS: Melekhina, Ye. V., Kuvshinskiy, Ye. V. 76-32-5-8/47

TITLE: Kinetics of the High Pressure Polymerization of Methylmethacrylate (Kinetika polimerizatsii metilmetakrilata pri vysokikh davleniyakh)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 5, pp. 1016-1022 (USSR)

ABSTRACT: The present work is a completion of the paper by L.F. Vereshchagin, V.A. Derevitskaya and Z.A. Rogovin (Ref 1) with the main attention in the kinetics being paid to the injected polymerization. Benzoylperoxide was used to 0,2 percent by weight and the experiments were carried out at pressures of 1 kg/cm² at 50-70°C and of 1000-4500 kg/cm² at 25-50°C. The kinetics were determined according to the dilatometric method by which means polymerization depths of to about 30% could be determined with an accuracy of 0,1%, while with pressures of above 1000 kg/cm² the dilatometric method according to Ye.V. Kuvshinskiy and A.S. Semenova (Ref 3) was applied. For filling the ampoules with the monomer a special vacuum plant was constructed the scheme of which as well as the working technique are given. From a graphically shown curve can be seen that the

Card 1/3

Kinetics of the High Pressure Polymerization of
Methylmethacrylate

76-32-5-8/47

course of polymerization can be divided into four sections; the experiments on the influence of the injection concentration on the polymerization kinetics on the other hand show that the moment of reaching the same polymerization depth is inversely proportional and the reaction velocity is directly proportional to \sqrt{C} . The temperature dependence of the reaction velocity is shown by a number of isobars while from a diagram it can be seen that with the increase of pressure the activation heat decreases and that on the other hand the rise of pressure effects an increase of the polymerization velocity. The increase of the polymerization degree was first observed by Norrish and Brookman (Ref 6), while the increase of the polymerization velocity and the increase of the molecular weight, not observed in the case of styrene, is explained by the occurrence of the jelly effect. Finally the authors point out that in using high pressures new elementary reactions of polymerization were observed. There are 9 figures, 1 table, and 10 references, 7 of which are Soviet.

Card 2/3